

### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A device for microfluidic control comprising:
  - a) a conduit having a first end and a second end;
  - b) a first path in fluid flow contact with the conduit;
  - c) a second path in fluid flow contact with the conduit; and
  - d) a regulator that is moveable in the conduit, wherein:  
the regulator has an outer dimension that is larger than the first end and the second end so the regulator cannot pass out of the conduit; and  
the regulator comprises a substantially elastic material having a structural component, the substantially elastic material being formed from one or more polymerizable precursors, the one or more polymerizable precursors comprising a halogenated acrylate monomer.
2. (Original) A device according to Claim 1 wherein the regulator is substantially incompressible.
3. (Original) A device according to Claim 1 wherein the regulator has an optical property.
4. (Original) A device according to Claim 1 wherein the regulator has a substantially stable volume when exposed to a fluid.
5. (Original) A device according to Claim 1 wherein the inner dimension of the conduit is less than about 1 millimeter.
6. (Original) A device according to Claim 1 wherein the regulator is substantially cylindrically shaped and moveable in a back and forth motion within the conduit.

Claim 7 (canceled).

8. (Currently amended) A device for microfluidic control comprising:

- a) a conduit having a first end and a second end;
- b) a first path in fluid flow contact with the conduit;
- c) a second path in fluid flow contact with the conduit; and
- d) a regulator that is movable in the conduit, wherein:

the regulator has an outer dimension that is larger than the first end and the second end so the regulator cannot pass out of the conduit; and

the regulator is a composite polymer formed from a composite mixture comprising a ~~polymerizable precursor~~ halogenated acrylate monomer and a particulate filler.

9. (Original) A device according to Claim 8 wherein the composite mixture additionally comprises a photo-initiator.

10. (Original) A device according to Claim 8 wherein the composite mixture comprises two or more polymerizable precursors and a particulate filler.

11. (Original) A device according to Claim 8 wherein the outer dimension of the particulate filler is less than about 1 micrometer.

Claims 12-13 (canceled).

14. (Currently amended) A device for microfluidic control comprising:

- a) a substrate;
- b) a conduit in the substrate having a first end and a second end;
- c) a first path in fluid flow contact with the first end of the conduit;
- d) a second path in fluid flow contact with the second end of the conduit; and
- e) a regulator movable in the conduit, wherein:

the regulator has an outer diameter that is larger than the first and second flow paths so the regulator cannot pass out of the conduit; and

the regulator is a substantially elastic material having a structural component, the substantially elastic material being formed from one or more polymerizable precursors, the one or more polymerizable precursors comprising a halogenated acrylate monomer.

15. (Previously presented) A device according to Claim 14 wherein the structural component is a particulate filler which is sized to be no more than 50% of the size of the smallest flow path in the conduit.

Claim 16 (canceled).

17. (Currently amended) A device for microfluidic control comprising:

- a) a conduit having a first end and a second end;
- b) a first path in fluid flow contact with the first end of the conduit;
- c) a second path in fluid flow contact with the second end of the conduit; and
- d) a regulator that is moveable in the conduit, wherein;

the regulator has an outer diameter that is larger than the first and second flow paths so the regulator cannot pass out of the conduit; and

the regulator is a composite polymer formed in the conduit by the in situ polymerization of a composite mixture comprising a halogenated acrylate monomer.

18. (Original) A device according to Claim 17 wherein the regulator is formed in the conduit by the in situ polymerization of the composite mixture with an energy source.

19. (Original) A device according to Claim 17 wherein the composite mixture comprises a polymerizable precursor, a particulate filler, and a photo-initiator and the regulator is formed in the conduit by the in situ polymerization of the composite mixture with a radiating light source.

Claims 20-34 (canceled).

35. (New) A device according to Claim 1 wherein the halogenated acrylate monomer is a fluorinated acrylate.

36. (New) A device according to Claim 35 wherein the fluorinated acrylate is selected from the group consisting of heptafluorobutyl acrylate and trifluoroethylacrylate.

37. (New) A device according to Claim 1 wherein the device is a high-performance liquid chromatography device.

38. (New) A device according to Claim 1 wherein the device is a flow-injection analysis device.

39. (New) A device according to Claim 8 wherein the halogenated acrylate monomer is a fluorinated acrylate.

40. (New) A device according to Claim 39 wherein the fluorinated acrylate is selected from the group consisting of heptafluorobutyl acrylate and trifluoroethylacrylate.

41. (New) A device according to Claim 8 wherein the device is a high-performance liquid chromatography device.

42. (New) A device according to Claim 8 wherein the device is a flow-injection analysis device.

43. (New) A device according to Claim 14 wherein the halogenated acrylate monomer is a fluorinated acrylate.

44. (New) A device according to Claim 43 wherein the fluorinated acrylate is selected from the group consisting of heptafluorobutyl acrylate and trifluoroethylacrylate.

45. (New) A device according to Claim 14 wherein the device is a high-performance liquid chromatography device.
46. (New) A device according to Claim 14 wherein the device is a flow-injection analysis device.
47. (New) A device according to Claim 17 wherein the halogenated acrylate monomer is a fluorinated acrylate.
48. (New) A device according to Claim 47 wherein the fluorinated acrylate is selected from the group consisting of heptafluorobutyl acrylate and trifluoroethylacrylate.
49. (New) A device according to Claim 17 wherein the device is a high-performance liquid chromatography device.
50. (New) A device according to Claim 17 wherein the device is a flow-injection analysis device.